EFFICIENCY ASSESSMENT OF PREOPERATIVE PREPARATORY PROGRAMS IN PEDIATRIC PATIENTS IN DENTISTRY
Milenin V.V., Tolasov K.R., Ostreikov I.F.
Research objective was to compare the efficiency of different preoperative preparatory programs which had been used for anxiety decrease in Pediatric patients before oral cavity sanitation with general anaesthesia. Two preparatory programs were used. In the first program patients were informed about the treatment they were undergoing. Patients visited the operating unit and watched the videos about forthcoming procedure (group of Information Technologies (IT), n=82). The second program included the tutorials (face mask use, acquaintance with equipment alarms etc.) in addition to Information Technologies (group of Information Technologies and tutorials (ITT) n=83). Information Technologies and tutorials were not used in the control group (n=86). Both used programs were effective. ITT program was the most effective.

Key words: preoperative preparatory programs in pediatric patients, anxiety, sedation

XENON AND SEVOFLURANE ANTI STRESS ACTIVITY COMPARATIVE ASSESSMENT DURING ELECTIVE ANAESTHESIA IN PEDIATRIC PATIENTS
Bagaev V.G., Amcheslavsky V.G., Leonov D.I.
Research objective was to compare Xenon and Sevoflurane anti stress activities during elective anaesthesia in Pediatric patients. Material and methods: The results of anaesthesia in 42 patients in age from 1 to 18 years were analyzed. The clinical sings, BIS-index, Somatotropinum hormone and Cortisol levels in patient's blood were studied. Results: Xenon and Sevoflurane provide sufficient level of sedation, analgesia and do not cause Somatotropinum hormone and Cortisol levels increase. Conclusion: Xenon and Sevoflurane have the same high anti stress activity. However Xenon anaesthesia is characterized by more stable haemodynamics.

Key words: xenon anaesthesia, stress hormones, anaesthesia in pediatric patients

ANAESTHETIC MAINTENANCE WITH LARYNGEAL MASK FOR A LAPAROSCOPIC SURGERY IN PEDIATRIC PATIENTS
Mironov P.I., Estekhin A.M., Mirasov A.A.
Research objective was to make a comparative assessment of haemodynamics, ventilation and oxygen status and perioperative complications during laparoscopic surgeries anaesthetic maintenance with intubation and laryngeal mask use in Pediatric patients. Methods: A retrospective observational controlled study. Study terms: from 2000 to 2012. Two groups of Pediatric patients were recruited in the study: 127 patients for general anaesthesia with laryngeal mask and 86 patients for general anaesthesia with endotracheal tube. Laparoscopy duration was 51.3±14.4 minutes. LMA-classic laryngeal mask was used. Study results showed that laryngeal mask use provided haemodynamics stability, adequate ventilation and oxygen status and shorter awakening time when compared with endotracheal tube use. Conclusion: General anaesthesia with laryngeal mask can be used for a short laparoscopic surgery in Pediatric patients without respiratory disorders and I-II classes due to ASA physical status classification.

Key words: General anaesthesia, Pediatric patients, laryngeal mask, laparoscopy

MODERN APPROACH TO THE NEUROMUSCULAR BLOCKING AGENTS USE IN PEDIATRIC PATIENTS
Agavelyan E.G., Stepanenko S.M.
Myorelaxants use decrease trend appeared since the end of 80 years of the 20th century. The trend is connected with use of the new narcotic analgesics (Remifentanil), intravenous (Propofol) and inhalation (Sevoflurane) anaesthetics. These drugs are manageable and predictable, they have not many side effects and can suppress laryngeal- pharyngeal reflex during the tracheal intubation. Furthermore there are other factors such as succinylcholines use when fast intubation is needed, the wrong myorelaxant and dosage choice. Residual curarization and side effects risk increases due to these factors. As a result the patient’s activation is delayed. Nevertheless myorelaxants use refusal impairs the tracheal intubation conditions, increases the arterial hypotension and heart failure risk especially in newborns and children with severe
pathology. If myorelaxants is not used, comfortable conditions of surgical manipulations impossible without big analgesics and anaesthetics doses use.

**Key words**: pediatric anaesthesiology, tracheal intubation, myorelaxants, sevoflurane, propofol

**RECOMBINANT ACTIVATED FACTOR VII USE FOR THE BLEEDING IMPLICATIONS PREVENTION DURING CENTRAL VENOUS CATHETERIZATION IN PEDIATRIC PATIENTS WITH ACUTE LEUCOSIS AND THROMBOCYTOPENIA**

Sergeeva A.M., Mazurok V.A., Zakirov I.I., Kichigin V.A.

Research objective was to develop an algorithm of the recombinant activated Factor VII (rFVIIa) prophylactic use for the bleeding implications prevention during central venous catheterization in Pediatric patients with acute leucosis and thrombocytopenia. Methods: 30 Pediatric patients with acute leucosis and thrombocytopenia received rFVIIa 30-120 μg kg⁻¹ before the internal jugular vein catheterization with ultrasound control. Comparative group 1 included 39 Pediatric patients without preventive haemostatic treatment; comparative group 2 included 30 patients received platelet concentrate. Results: the first attempt catheterization numbers increased, the time of the catheterization was reduced, platelet aggregation was improved and the bleeding implications frequency was 6.6% in patients received rFVIIa before the internal jugular vein catheterization. 23.1% - in the comparative group 1; 26.7% in the comparative group 2. Conclusion: Ultrasound navigation and rFVIIa preventive use together improve internal jugular vein catheterization results.

**Key words**: recombinant activated factor VII (rFVIIa), central venous catheterization, bleeding implications, acute leucosis, Thrombocytopenia

**INTENSIVE CARE IN NEWBORNS**

**ALVEOLAR RECRUITMENT MANEUVERS OXYGENATION EFFECTS IN NEWBORNS WITH INFANT RESPIRATORY DISTRESS SYNDROME**

Aleksandrovich U.S., Pechueva O.A., Pshenisnov K.V.

Infant respiratory distress syndrome (IRDS) is a most common neonatal critical condition which is accompanied by the hypoxemia increase and needs the use of the highly invasive respiratory support methods. Alveolar recruitment maneuver is a one of the most promising and pathogenetically grounded method. The method is widely used in adults, but its use in Pediatric patients requires evidence of the effectiveness. Research objective: To study alveolar recruitment maneuver use effectiveness in newborns with IRDS by the examining patient's clinical status and the nearest and longterm outcomes. Methods: Alveolar recruitment maneuver was used in 45 newborns with IRDS accompanied by the hypoxemia (group 1). Retrospective analysis of conditions and outcomes in19 newborns with IRDS, without use of alveolar recruitment maneuver, was conducted in 2009 (group 2). Results: Alveolar recruitment maneuver improves ventilation and oxygenation in newborns with IRDS (paO₂ 53 torr. in group 1 vs. 36 torr. in group 2 and SpO₂ 95% vs. 90%). Alveolar recruitment maneuver use decreases the long term implications frequency in newborns with IRDS. Conclusion: Alveolar recruitment maneuver is highly effective in newborns with IRDS. Its use decreases implications frequency and improves long term outcomes.

**Key words**: alveolar recruitment maneuver, infant respiratory distress syndrome, newborn, outcomes

**PROGNOSTIC CRITERIA OF THE PREMATURE INFANTS WEANING FROM MECHANICAL VENTILATION DURING TRIGGER VENTILATION**

Grebennikov V.A., Kriakvina O.A., Boltunova E.S., Degtiareva M.V.

Modern mechanical ventilation modes do not prevent ventilator-associated lung injury therefore respiratory cessation must be stopped as soon as possible. However extubation recommendations absence makes difficulties in process of weaning the infants from the mechanical ventilation. Research objective: To assess the prognostic criteria of the extubating and weaning from mechanical ventilation in premature infants during trigger ventilation (PSV/PSV+VG). Methods: 66 Pediatric patients were divided into two groups during the period of weaning from mechanical ventilation: PSV+PG ventilation mode was used in the group 1 (n=33), and PSV in the group 2 (n=33). Basic characteristics were same in both groups: gestational age 31.1±2.5 weeks, mass of body 1586.2±356.8 grams. Extubation was successful if reintubation was not needed during 48 hrs. Results: 90% of successful extubations were done when the compliance was over 1.1 ml mbar⁻¹. Compliance decrease under 0.75 ml mbar⁻¹ was an adverse prognostic criterion of the weaning from mechanical ventilation and extubation. Index breathing rate/breathing volume (RVR) can be used as general criterion of the weaning from mechanical ventilation. Progressive RVR increase to 8 is an adverse prognostic criterion of PSV/ PSV+VG mode use during the period of weaning from mechanical ventilation. Parameters of mechanical ventilation which maintain acceptable gas composition of blood and SpO₂ must be considered before extubation. Conclusion: Positive dynamics and stabilization of compliance and resistance are
essential criteria of the successful weaning from mechanical ventilation and extubation. RVR can be used as objective criterion of an extubation.

**Keywords**: extubation, mechanical ventilation, RVR

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**CPAP AS A METHOD OF PRIMARY RESPIRATORY SUPPORT IN PREMATURE INFANTS WITH ACUTE RESPIRATORY DISTRESS SYNDROME**

Mazmanyan P.A.

Recent years neonatologists attempt to support the premature infants breathing without the intubation and mechanical ventilation use. Recent studies and new modern equipment for noninvasive ventilation resume the interest in CPAP. The article presents the review of the recent studies which investigated CPAP effectiveness as a method of primary respiratory support in premature infants with acute respiratory distress syndrome. Big attention was paid to the surfactant use and InSurE approach in the modern treatment of respiratory disorders according the latest data of evidence based medicine.

**Keywords**: premature infants, respiratory distress syndrome, CPAP

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**INNOVATIONS IN ANAESTHESIOLOGY**

**SUGAMMADEX USE EXPERIENCE IN PEDIATRIC ONCOLOGY**

Matinyan N.V., Saltanov A.I., Mareeva A.A.

Sugammadex is a new type agent for reversal of neuromuscular blockade in any stage. There are foreign and home sugammadex use studies; however the information of sugammadex use in Pediatric patients is not enough. The article deals with study results of sugammadex use in Pediatric surgical oncology for the reversal of neuromuscular blockade by the agent rocuronium. 42 Pediatric patients in age from 2 to 17 years after elective oncology surgeries were recruited in the study. The speed and entirety of myorelaxation shifting as an evidence of sugammadex effectiveness were assessed by the accelerometer.

**Keywords**: neuromuscular transmission, neuromuscular block, neuromuscular block reversion, sugammadex, pediatric Oncology

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**DEXMEDETOMIDINE: NEW OPPORTUNITIES IN ANESTHESIOLOGY**

Kulikov A.S, Lubnin A.Yu.

Dexmedetomidine is a novel α2-agonist with unique characteristics. The review contains description of main pharmacological and physiological features of this drug. The experience of off-label using of dexmedetomidine in anesthesia is discussed in details. Authors consider that dexmedetomidine can improve anesthesia management in various clinical situations due to specific sedation profile similar to natural human sleep pattern. It can be helpful in neurosurgery, in overweight patients or in patients with high cardiac risk as well as in pediatric practice.

**Keywords**: dexmedetomidine, α2-agonists, neurosurgery, sedation.

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**HAEMODYNAMICS DURING KIDNEY TRANSPLANTATION AND GENERAL ANAESTHESIA IN COMBINATION WITH EPIDURAL BLOCK AND WITHOUT IT IN PEDIATRIC PATIENTS**

Lazarev V.V., Salmasi K.G., Tsypin L.E., Kochkin V.S., Valov A.L., Ectov D.B.

Research objective: To compare haemodynamic effects of general anaesthesia in combination with epidural block and without it during kidney transplantation in Pediatric patients. Methods: 61 Pediatric patients undergoing kidney transplantation were divided into two groups. General anaesthesia with sevoflurane, propofol, phentanilum and regional ropivacaine epidural block were used in the group 1. General anaesthesia was used only in the group 2. Haemodynamic parameters were assessed: Arterial blood pressure, stroke volume, central venous pressure and cardiac index. Results: Both techniques of anaesthesia were adequate. Conclusion: regional ropivacaine epidural block and general anaesthesia combination provides more stable haemodynamic parameters than general anaesthesia single use.

**Keywords**: general anaesthesia, regional anaesthesia, pediatric patients, kidney transplantation, haemodynamics, ropivacaine
PERIPHERAL REGIONAL BLOCK ROLE IN ORTHOPEDICS IN PEDIATRIC PATIENTS WITH CEREBRAL PALSY

Diordiev A.V., Aizenberg V.L.

Haemodynamics of 58 Pediatric patients with cerebral palsy was studied during combined anaesthesia based on sevoflurane and peripheral nerve block. Sevoflurane and peripheral nerve block with infusion support 14-15 ml/kg/hr provide stable cardiac output during orthopedic surgeries in Pediatric patients with cerebral palsy. Excessive arterial hypotension and total peripheral vascular resistance decrease were registered in older patients as results of more pronounced vascular effect of anaesthetics in patients with decreased adaptive-compensatory possibilities and insuffi cient infusion support. The proposed anaesthesia method provides adequate intraoperative analgesia, fast recovery and comfortable postoperative period.

K e y w o r d s: infant cerebral palsy, sevoflurane, peripheral nerve block, haemodynamics, infusion therapy

TO HELP A PRACTITIONER

STUDY OF GLUTAMINE SOLUTION USE EFFICIENCY IN PEDIATRIC PATIENTS WITH HEAVY THERMIC BURNS AND CONCOMITANT INJURIES IN THE INTENSIVE CARE UNIT

Lekmanov A.U., Erpuleva U.V., Zolkina I.V., Rossaus P.A.

Comparing analysis of randomized study was conducted. 40 Pediatric patients (2-15 years old) with heavy thermic burns and concomitant injuries were recruited into the study to assess the glutamine solution intravenous use efficiency. Parenteral feeding and feeding with glutamine solution intravenous use were clinicaly and laboratory compared. Duration of mechanical ventilation decreased in group of feeding with glutamine solution intravenous use. Preliminary results of the study recommend to include glutamine in the programs of parenteral feeding.

K e y w o r d s: pediatric patients, heavy thermic and concomitant injury, parenteral feeding, glutamine

CLINICAL CASE OF CESAREAN, COMBINED WITH CONVEXITAL GIANT MENINGIOMA RESECTION IN ADOLESCENT GIRL

Savvina I.A., Hachatryan V.A., Kim A.V., Zabrodskaya U.M.

The article deals with a case of successful surgical treatment of 16 years old patient with giant meningioma of right temporal, parietal and frontal lobes. Patient was on a 32 week of pregnancy and she had a Caesarean section before meningioma treatment. The article discusses the problems of anaesthesiological, surgical and obstetric tactics.

K e y w o r d s: encephaloma, pregnancy, meningioma

CLINICAL CASE OF AMYOTROPHIC LATERAL SCLEROSIS MANAGEMENT AND TREATMENT IN THE NON-CORE CLINIC


The article points out the problems of amyotrophic lateral sclerosis (ALS) diagnostics, management and treatment in the non-core clinic (oncological dispensary intensive care unit). There is no legislative base for medical and social protection of patients with ALS in Russia. Article stresses the need to attract the attention of Ministry of healthcare of Russia to this problem.

K e y w o r d s: Amyotrophic lateral sclerosis, paraneoplastic syndrome, leukoaraiosis, axonal demyelinating polyneuropathy, leukoencephalopathy, diaphragmatic paralysis

COMBINED ANAESTHESIA FOR RHINOSEPTOPLASTY IN PEDIATRIC PATIENTS


The article deals with efficiency and advantages analysis of Marcaine 0.25% and Epinephrine 1:200000 intraoperative uses as a supplementary analgesia for rhinoseptoplasty in Pediatric patients.

K e y w o r d s: rhinoseptoplasty, marcaine, epinephrine
SIMULATOR FOR EPIDURAL ANAESTHESIA SKILL TRAINING WITH ULTRASOUND CONTROL

Nasekin M.V., Babae B.D.

The article deals with skills improving problem of epidural anaesthesia with ultrasound control. Methods of gelatin spinal column model making, use and its economical side are discussed in the article.

**Key words:** epidural anaesthesia with ultrasound control, gelatin spinal column model

FACTORS AFFECTING THE RECOVERY IN THE INTENSIVE CARE UNIT

Turkov P.N., Nikitin V.V., Antsupova M.A., Podkopaev V.N., Panfi lova R.P., Ivanova I.N., L.I.Nesterova

Urgency of the problem is defi ned by economical, regulatory and legislative acts, regional social and moral factors. There is critical situation in Russian Pediatric Healthcare system. This situation is due to inadequate funding, high medical technologies inaccessibility for some Russian children, their adverse health state. The article presents a retrospective analysis of intensive therapy and resuscitation outcomes with technical equipment and work environment assessment in the intensive care unit of Tushinskaya city pediatric clinic for the period from 2007 to 2011. Anaesthetic and emergency care quality and safety depend on several factors: permanent equipment improvement, comprehensive analysis of every fatal case and full implementation of "Anti-epidemic (prophylactic) actions plan" and "Program of monitoring compliance with the sanitary norms".

**Key words:** pediatric healthcare system, system funding, intensive care, emergency care

REVIEWS

CONTEMPORARY OPINION ABOUT ANTICHOLINERGICS USE IN PREMEDICATION

Tolasov K. R., Petrova G.I., Ostreikov I.F.

The article deals with the analysis of publications which discuss anticholinergics use in premedication. The article briefl y says about the use history and characteristics of anticholinergics. In conclusion the article stresses the need to abandon the routine anticholinergics use. Intravenous anticholinergics application is preferable if there are indications for its use. New inhalation and intravenous anaesthetics promote to prescribe the anticholinergics individually.

**Key words:** anticholinergics, atropine, premedication, bradycardia, arrhythmia, salivation

POSTOPERATIVE ANALGESIA AFTER THORACOSCOPIC SURGERIES IN PEDIATRIC PATIENTS

Stepanenko S.M., Rasumovsky A.U., Afukov I.I.

Postoperative pain after thoracic surgeries is characterized by intensity and long duration. The intensity of pain can be moderate or strongly expressed, the duration various from one day to months and years either after thoracotomy (TT) or thoracoscopy (TS). Pain relief is one of the most important problems of postoperative period. Adequate analgesia, lung function and temperate sedation, ventilation must be provided against the general disease, surgical injury and onelung ventilation. TS is a less invasive method therefore pain syndrome is not very strong. There are several methods of postoperative analgesia in Pediatric patients; however the choice is limited by the patient’s age. Postoperative analgesia in Pediatric patients can be provided by narcotic and nonnarcotic analgesics, neuraxial anesthesia; multimodal approach is widely used. Postoperative pain after TS needs adequate analgesia for implications prevention and to reduce the duration of hospital stay.

**Key words:** pediatric patients, thoracoscopy, postoperative analgesia, epidural anaesthesia, patient controlled intravenous and epidural analgesia, narcotic analgesics, nonsteroidal anti-inflammatory drugs

MODES OF MECHANICAL VENTILATION DURING TRANSFERRING THE PATIENT TO SPONTANEOUS BREATHING

Chernykh A.S.

Mechanical ventilation (MV) has become a general treatment in the intensive care unit in recent years. Mechanical ventilation is a resuscitation treatment; however MV causes many implications therefore it is to be finished as soon as the patient’s condition begins improve. Modern transferring the patient to spontaneous breathing decreases implications number. Significant part of mechanical ventilation time (40%) is a time of weaning from mechanical ventilation. Weaning from MV is an economical, clinical and ethical problem. Many ventilation modes have introduced in clinical practice through the microprocessor technologies development. Supporting ventilation modes help to avoid some adverse effects of mechanical ventilation. The article deals with historical approaches development their advantages and limitations.
Keywords: Spontaneous breathing, weaning from mechanical ventilation, mechanical ventilation in Pediatric patients, SIMV, BIPAP, spontaneous breathing test